

**Engineering Research in Diabetes
Summer Research Experience for Undergraduates (REU)
Summer 2008**

Approximately 21 million people in the United States and over 194 million worldwide suffer from Diabetes Mellitus. While a cure does not currently exist, biomedical engineering is providing important inroads to understanding and treating the disease and its many complications. The Illinois Institute of Technology (IIT) has recently established a unique multi-disciplinary center, the Engineering Center For Diabetes Research and Education (ECDRE). In the ECDRE, engineers at IIT collaborate with basic scientists and clinicians at the University of Chicago (UC) with the goal of applying engineering techniques to increase understanding and treatment of diabetes and its complications.

Research

The Biomedical Engineering Department at IIT in collaboration with the ECDRE provide the foundation for this summer program. The primary goal of this program is for students to complete a diabetes related research project working with an engineering mentor from IIT. Students will be paired with faculty at IIT based on the interests of the student and the faculty's expertise. Diabetes is a complex disease that can lead to a number of health complications. The projects offered in this program reflect this diversity, with topics in biomaterials for islet cell encapsulation, software models of glucose metabolism, medical imaging techniques for prognosis/diagnosis of disease, tissue regeneration strategies for the treatment of ulcers and ischemic limbs, vascular changes in diabetic retinopathy, complications of thrombosis in islet cell transplantation, and many other topics. You can find out more about previous research performed and the application process at <http://www.grad.iit.edu/reu/>.



Healthcare

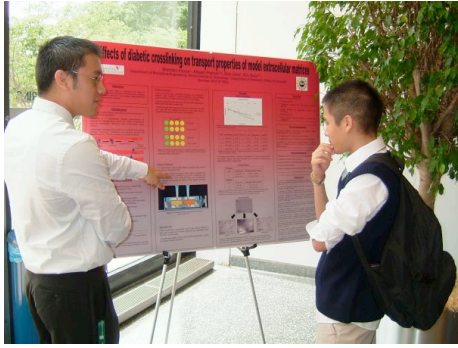
Physicians at the University of Chicago play an important role in this program. In addition to collaborating on many of the research projects, clinicians will present on the impact of diabetes on patient health and the current status of clinical research and needs as a part of the program's weekly seminars. In addition, students will be given tours of the Transplant Center, the Ophthalmology Clinic, and a dialysis unit at the University of Chicago. This will emphasize the health implications related to diabetes and its relevance to research being performed.

Ethics

Biomedical research presents complex ethical challenges. Ethics discussion and training will be integrated into all aspects of the student experience. These activities will be organized with IIT's Center for the Study of Ethics in the Professions.

Social and Outreach

Students in the program get to spend a summer in one of the most dynamic cities in the United States. IIT's Mies van der Rohe designed campus is a national historic site, located just south of



Chicago's Loop and down the street from Cellular Field, the home of the Chicago White Sox. The location allows students to enjoy Chicago's extensive list of summer festivals, cultural experiences, and sporting events. Social activities include a student/faculty cookout, REU dinners, and a trip to a White Sox game.

Students have the opportunity to participate in a diabetes camp for children with Type I diabetes and their parents supported by the American Diabetes Association. This experience offer students a broad exposure to the disease and direct interaction with people dealing with diabetes in their daily lives.

Dates

The program is 10 weeks, from early June to August. If conflicts occur with students on a quarter system, they have the option to arrive one week later and extend their stay an extra week.

Support

Students will receive a stipend, room and board (for NSF scholars and the REU pipeline program funding mechanisms), and travel coverage for the trip to and from Chicago.

Eligibility

Students involved in the summer program can be funded under three different mechanisms:

1. NSF Scholars
 - Funding for students from institutions other than IIT who will have completed a minimum of their sophomore year by summer 2008.
2. Ross Scholars
 - Funding for IIT students who will have completed a minimum of their sophomore year by summer 2008.
3. REU pipeline Scholars
 - Funding for current collage freshman from underrepresented minority groups.

For all programs the following criteria apply:

1. Students should have a declared engineering or science (biology, chemistry, mathematics, computer science, or physics) major.
2. Students should have a minimum GPA of 3.00/4.00.
3. Selected applicants must be US citizens or permanent residents.
4. *Women and students from underrepresented minority groups are encouraged to apply to all programs.*

Information

Applications are due in February of 2008. For applications go online to <http://www.grad.iit.edu/reu/> Applications for the 2008 program will go online in December of 2007. If you have questions, contact:

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